

Report under The Conservation of Habitats and
Species Regulations 2017 (as amended),
Regulation 9A

2019-2024

Conservation status assessment for the species:

S1334 - Mountain hare

(Lepus timidus)

England



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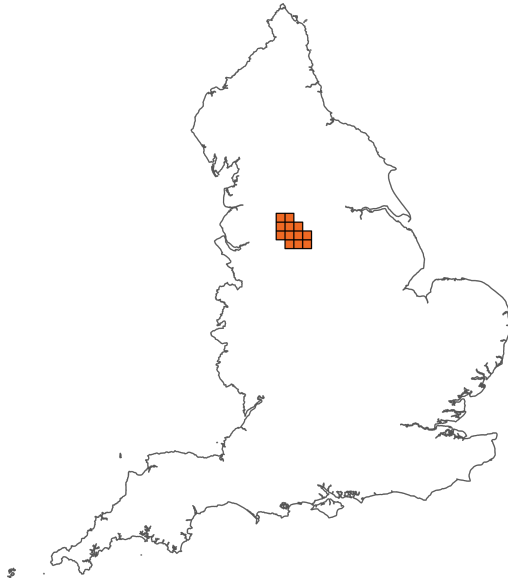
Important note - Please read

- The information in this document represents the England Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural England, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the [JNCC website](#).

Assessment Summary: Mountain hare

Distribution Map



Range Map

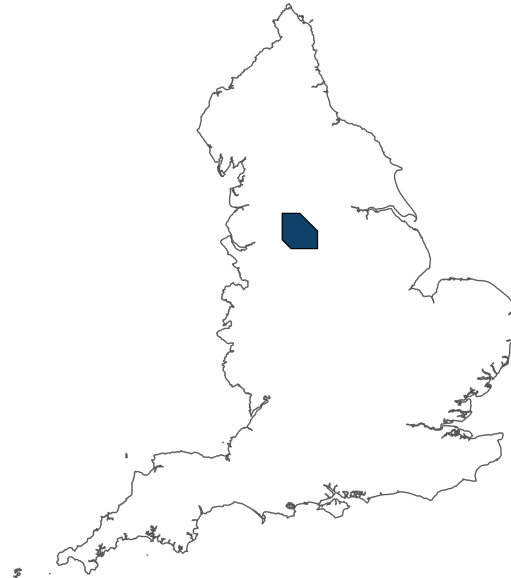


Figure 1: England distribution and range map for S1334 - Mountain hare (*Lepus timidus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1334 - Mountain hare (*Lepus timidus*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Unfavourable-bad (U2)

Breakdown of Overall Conservation Status

Range (see section 5)

Unfavourable-inadequate (U1)

Population (see section 6)

Unfavourable-bad (U2)

Habitat for the species (see section 7)

Unknown (XX)

Future prospects (see section 10)

Unfavourable-bad (U2)

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National Level

1. General information

1.1 Country	England
1.2 Species code	S1334
1.3 Species scientific name	<i>Lepus timidus</i>
1.4 Alternative species scientific name	
1.5 Common name	Mountain hare
Annex(es)	V

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2017-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.5 Additional information

The range map has been produced following the same methodology that was used in 2007 and 2013 whereby a 45km alpha hull value has been used for all species with a starting range unit of individual 10km squares. In 2018 range was taken from Mathews et al, whereby an alpha hull value of 20km was drawn around the presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them. That process led to the production of much finer detailed maps being produced. For the 2026 Regulation 9A reporting round the distribution datasets reported for all features have been created using existing Natural England source data and additional datasets made available to Natural England for Regulation 9a reporting under Open Government (OGL) or Creative Commons (CC-BY) license. The reinterpretation of source data is a methodological change which has resulted in changes to mapped

distribution and hence range for some features. In a few cases the available data is known to not reflect the full distribution of a feature. Where apparent change is an artefact of the mapping approach, rather than real change in distribution it will be highlighted, and associated changes in range explained, in the assessment text.

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited? Yes

3.2 What measures have been taken?

a) Regulations regarding access to property Yes

b) Temporary or local prohibition on the taking of specimens in the wild and exploitation Yes

c) Regulation of the periods and/or methods of taking specimens Yes

d) Application of hunting and fishing rules which take account of the conservation of such populations Yes

e) Establishment of a system of licences for taking specimens or of quotas No

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens Yes

g) Breeding in captivity of animal species as well as artificial propagation of plant species No

Other measures No

Other measures description

3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit number of individuals

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
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b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	Yes	Yes	Yes	Yes	Yes	Yes

3.4: Hunting bag or quantity taken in the wild; Method used

3.5: Additional information

There is anecdotal evidence of harvesting of mountain hares in the Peak District National Park. However, there is no dataset that exists from which to draw upon.

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs ATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²) 1,350

5.2 Short-term trend; Period 2017-2024

5.3 Short-term trend; Direction Decreasing

5.4 Short-term trend; Magnitude

a) Estimated minimum

b) Estimated maximum

c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	Decreasing $\leq 1\%$ (one percent or less) per year on average
5.5 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data
5.6 Long-term trend; Period	
5.7 Long-term trend; Direction	
5.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
5.9 Long-term trend; Method used	
5.10 Favourable Reference Range (FRR)	
a) Area (km²)	
b) Pre-defined increment	
c) Unknown	Yes
d) Method used	
e) Quality of information	
5.11 Change and reason for change in surface area of range	
a) Change	Yes
b) Genuine change	Yes
c) Improved knowledge or more accurate data	Yes
d) Different method	Yes

e) No information	No
f) Other reason	No
g) Main reason	Use of different method

5.12 Additional information

Whilst there is a change in range due to the differing methodologies used to produce the range maps as explained under maps 2.5 and the species audit 5.5, there has been a genuine contraction in range for the species. Bedson et al 2025, notes that over a seven year period (2017-2024) there has been a statistically significant decline of mountain hare density in previously occupied areas by 58% on Bleaklow and Margery Hill in the Peak District. Assuming constant rates of decline, the mountain hare population in these areas would become extinct in three to five years leading to further range contraction. The species was found to have declined in all habitat classes at these sites within its range, with the greatest declines on grouse moor heath, followed by grouse moor bog. Acid grassland recorded a consistent gradual decline in mountain hare presence.

6. Population

6.1 Year or period 2017-2024

6.2 Population size (in reporting unit)

a) Unit	number of individuals
b) Minimum	604
c) Maximum	5,624
d) Best single value	1,038
6.3 Type of estimate	95% confidence interval
6.4 Quality of extrapolation to reporting unit	high

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	
b) Minimum	
c) Maximum	

d) Best single value

e) Type of estimate

6.6 Population size; Method used Complete survey or a statistically robust estimate

6.7 Short-term trend; Period 2013-2024

6.8 Short-term trend; Direction Decreasing

6.9 Short-term trend; Magnitude

a) Estimated minimum 40

b) Estimated maximum 60

c) Pre-defined range

d) Unknown No

e) Type of estimate 95% confidence interval

f) Rate of decrease Decreasing >1% (more than one percent) per year on average

6.10 Short-term trend; Method used Complete survey or a statistically robust estimate

6.11 Long-term trend; Period

6.12 Long-term trend; Direction

6.13 Long-term trend; Magnitude

a) Minimum

b) Maximum

c) Confidence interval

d) Rate of decrease

6.14 Long-term trend; Method used

6.15 Favourable Reference Population (FRP)

ai) Population size

aii) Unit

b) Pre-defined increment

c) Unknown Yes

d) Method used

e) Quality of information

6.16 Change and reason for change in population size

a) Change Yes

b) Genuine change Yes

c) Improved knowledge or more accurate data Yes

d) Different method Yes

e) No information No

f) Other reason No

g) Main reason Improved knowledge/more accurate data

6.17 Additional information

Mathews et al (2018) gave estimates of 1,500 individuals (lower plausible limit) to 9,500 (upper plausible limit). These figures were used in the previous reporting round 2013-2018. The population estimate was calculated using population density estimates from one location on moorland managed for grouse in the central highlands. For this current reporting round, new survey data has been gathered from the Peak District population (Bedson et al, 2025) using distance sampling analysis at specific sites. Whole population estimates were derived by extrapolating to the wider Peak District National Park.

6.18 Age structure, mortality and reproduction deviation Yes, but not strongly deviating from normal

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient? Unknown

b) Is quality of occupied habitat sufficient? Unknown

c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality? Unknown

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used Complete survey or a statistically robust estimate

b) Sufficiency of quality of occupied habitat; Method used Complete survey or a statistically robust estimate

7.3 Short-term trend; Period 2013-2024

7.4 Short-term trend; Direction Uncertain

7.5 Short-term trend; Method used Complete survey or a statistically robust estimate

7.6 Long-term trend; Period

7.7 Long-term trend; Direction

7.8 Long-term trend; Method used

7.9 Additional information

No additional information

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA01: Conversion into agricultural land (excluding drainage and burning)	Ongoing and likely to be in the future	High (H)
PA07: Intensive grazing or overgrazing by livestock	Ongoing	High (H)
PB01: Conversion to forest from other land uses, or afforestation (excluding drainage)	Ongoing and likely to be in the future	Medium (M)
PG08: Hunting	Ongoing	High (H)
PG11: Illegal shooting/killing	Ongoing	High (H)
PJ10: Change of habitat location, size, and / or quality due to climate change	Ongoing and likely to be in the future	High (H)
PJ14: Other climate related changes in abiotic conditions	Ongoing and likely to be in the future	Medium (M)
PM03: Natural wild fires	Ongoing and likely to be in the future	High (H)
PI04: Plant and animal diseases, pathogens and pests	Ongoing and likely to be in the future	Medium (M)
PH04: Vandalism or arson (incl. human-introduced wild fire)	Ongoing and likely to be in the future	Medium (M)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	Medium (M)

8.2 Sources of information

See section 14 References

8.3 Additional information

No additional information

9. Conservation measures

9.1: Status of measures

a) Are measures needed?

Yes

b) Indicate the status of measures

Measures identified and taken

9.2 Main purpose of the measures taken	Maintain the current range, population and/or habitat for the species
9.3 Location of the measures taken	Both inside and outside National Site Network
9.4 Response to measures	Long-term results (after 2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	High (H)
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	High (H)
MA06: Stop mowing, grazing and other equivalent agricultural activities e.g. burning (incl. restore or improve habitats)	High (H)
MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation	Medium (M)
MG02: Management of hunting, recreational fishing, and the recreational or commercial harvesting or collection of plants and fungi (incl. restoration of habitats)	High (H)
MG04: Control/eradication of illegal killing, fishing and harvesting of wild plants, fungi and animals	High (H)

9.6 Additional information

In the previous reporting round 2013-2018 it was hoped that the mountain hare would respond to conservation measures undertaken within the reporting period 2019-2036. Whilst, mountain hares continue to persist on areas of restored blanket bog via moorland management plans and agri-environment schemes the population as a whole is small and declining, exhibiting increasing risk of extinction (Bedson et al, 2025). As such the conservation measure timeframe has been increased to long-term results (after 2036).

10. Future prospects

10.1a Future trends of parameters

ai) Range	Negative - decreasing $\leq 1\%$ (one percent or less) per year on average
bi) Population	Very Negative - decreasing $> 1\%$ (more than one percent) per year on average
ci) Habitat for the species	Overall stable

10.1b Future prospects of parameters

aii) Range	Bad
bii) Population	Bad
cii) Habitat for the species	Unknown

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Unfavourable-inadequate (U1)
11.2 Population	Unfavourable-bad (U2)
11.3 Habitat for the species	Unknown (XX)
11.4 Future prospects	Unfavourable-bad (U2)
11.5 Overall assessment of Conservation Status	Unfavourable-bad (U2)
11.6 Overall trend in Conservation Status	Deteriorating

11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.8 Additional information

No additional information

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

a) Unit

b) Minimum

c) Maximum

d) Best single value

12.2 Type of estimate

12.3 Population size inside the network; Method used

12.4 Short-term trend of population size within the network; Direction

12.5 Short-term trend of population size within the network; Method used

12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction

12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

Bedson, C.P., Devenish, C., Symeonakis, E., Mallon, D., Reid, N., Harris, W.E. and Preziosi, R., (2021). Splitting hares: current and future ecological niches predicted as distinctly different for two congeneric lagomorphs. *Acta Oecologica*, 111, p.103742.

Bedson, C.P.E. (2022). Population Assessment of the Mountain Hares (*Lepus timidus*) of England: Distribution, Abundance and Genetics. Doctoral Thesis (PhD), Manchester Metropolitan University, England.

Bedson, C., Walsh, K. and Crick, H.Q.P. (2025). Seven year decline of Mountain hare abundance in the Peak District, England. *Ecology and Evolution*.

Harris, S., and Yalden, D.W. (2008). *Mammals of the British Isles*. Mammal Society.

Harrison, A., Newey, S., Gilbert, L., Haydon, D.T. and Thirgood, S., (2010). Culling wildlife hosts to control disease: mountain hares, red grouse and louping ill virus. *Journal of Applied Ecology*, 47(4), pp.926-930.

Joint Nature Conservation Committee (2019). Fourth Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2013 to December 2018. Peterborough: JNCC

Kendon, M., Doherty, A., Hollis, D., Carlisle, E., Packman, S., McCarthy, M., Jevrejeva, S., Matthews, A., Williams, J., Garforth, J. and Sparks, T., (2024). State of the UK Climate 2023. *International Journal of Climatology*, 44, pp.1-117.

Mallon, D., Wheeler, P., Whiteley, D. and Yalden, D.W., (2003). Mountain hares in the Peak District. *British Wildlife*, 15(2), pp.110-116.

Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C.A., McDonald, R.A. and Shore, R.F., (2018). A review of the population and conservation status of British mammals. A report by the Mammal Society under contract to Natural England. Natural Resources Wales and Scottish Natural Heritage, p.701.

Newey, S., Dahl, F., Willebrand, T. and Thirgood, S., (2007). Unstable dynamics and population limitation in mountain hares. *Biological Reviews*, 82(4), pp.527-549.

Newey, S., Iason, G. and Raynor, R. (2008). The conservation status and management of mountain hares. Scottish Natural Heritage Commissioned Report No. 287 (ROAME No. F05AC316)

Patton, V., Ewald, J.A., Smith, A.A., Newey, S., Iason, G.R., Thirgood, S.J. and Raynor, R., (2010). Distribution of mountain hares *Lepus timidus* in Scotland: results from a questionnaire. *Mammal Review*, 40(4), pp.313-326.

Stubbs, F.J. (1929). The Alpine Hare on the Pennines. *Naturalist* 1929.

Zimova, M., Giery, S.T., Newey, S., Nowak, J.J., Spencer, M. and Mills, L.S., (2020). Lack of phenological shift leads to increased camouflage mismatch in mountain hares. *Proceedings of the Royal Society B*, 287(1941), p.20201786.

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
1.5: Common name	<p>In England, mountain hares became extinct around 6000bp. They were reintroduced to areas of the South Pennines Moors lying within the present-day Peak District National Park by landowners with sporting interests in the 1870s (Harris and Yalden, 2008). From the 1970s studies describe a small and stable population (Mallon, 2003). Mountain hare densities are highest in areas of restored blanket bog, which is likely due to the combination of the best opportunities for shelter, foraging and movement through the landscape for the species (Bedson, 2021).</p>
5.5: Short-term trend; Method used	<p>Range is based on presence data collected between 2017-2024. Areas that contain very isolated records may not have been included in the distribution. The range map has been produced following the same methodology that was used in 2007 and 2013 whereby a 45km alpha hull value has been used for all species with a starting range unit of individual 10km squares. In 2018 range was taken from Mathews et al, whereby an alpha hull value of 20km was drawn around the presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them. That process led to the production of much finer detailed maps being produced. However, this approach to mapping was not an option for this reporting round (2018-2024). This has resulted in an apparent reduction in range from 2400km² to 1350km².</p>
6.2: Population size	<p>The population size has been recorded as a best estimate of 1,038 individuals based on distance sampling analysis undertaken between 2017-2024 within the Peak District National Park.</p>

6.8: Short-term trend; Direction	The short term direction for the population continues to decrease. The recorded decrease is based on the latest survey information from Bedson et al, 2025. The decrease in the population is large at 58% and statistically significant. Survey effort within the area is continuing.
6.15: Favourable Reference Population (FRP)	In the previous reporting round an FRP was provided. However, the report was then at a UK level considering the population in Scotland. Whilst, updated surveys have taken place in England since the last reporting round, different methods were used in that assessment, the population continues to decline and is at risk of extinction. An FRP has not been calculated for the species at an England level.
7.1: Sufficiency of area and quality of occupied habitat	The area and quality of habitat for the species has been assessed as unknown. Whilst, there have been considerable efforts to restore bog habitat since 2016, there are also areas within the species range which have been subject to overgrazing by sheep and extensive heather burning practices have resulted in less favourable habitat for the species. Future data based on a mild warming scenario for 2050 (IPCC RCP2.6) suggests that the population would likely be extinct by 2050 (Bedson et al, 2021). Additionally, this habitat suitability modelling suggests that there is nowhere else in England suitable for the species and migration to Scotland, where the only other suitable habitat can be found is not possible for this restricted and isolated population (C. Bedson, pers comms)
7.4: Short-term trend; Direction	The species have persisted in this area for a considerable length of time. However, the species continues to decline and it is possible that both the habitat for the species and the quality of that habitat may be part of the reason for this decline. However, these factors are uncertain.
7.5: Short-term trend; Method used	Whilst, there is a robust data set on the habitat available for the species there are uncertainties as to what this means for the species as mountain hare populations continue to dramatically decline from the Peak District.
8.1: Characterisation of pressures	Pressures to this small population are broadly due to habitat fragmentation, land use change, roadkill,

overharvesting and illegal persecution, climate change, genetics, disease and population cyclicity. Mountain hare populations are cyclical and this can naturally lead to reductions in the population by up to 80% (Newey et al, 2007). This cyclicity can be driven by a range of factors but is often associated with large parasite loads. Disease, however, has not been evidenced as the current cause for this continued decline in the population for this reporting period. Control measures are used to reduce damage to forestry and to reduce disease transmission of louping ill in grouse, as well as shooting for sport (Newey et al, 2008; Patton et al, 2010 and Harrison et al 2010). Periodic reports of illegal persecution incidents have been and continue to be documented. Climate change is expected to increase mountain hare vulnerability to predation and reduce the distribution of mountain hare populations (Zimova et al 2020 and Kendon et al 2024) concurrent to the mountain hare decline trajectory (Bedson et al, 2025). There is a concern that the hare population in the Peak District is of low genetic diversity. The small founder population came from Scotland in the 1870's (Stubbs, 1929). Scottish mountain hares have the lowest genetic diversity of all hare populations in Europe. There is pressure on mountain hare habitat due to loss, fragmentation and degradation, agricultural practices and climate change. Hybridisation and competitive exclusion with brown hares may become a pressure where ranges overlap. Roadkill of mountain hares was reportedly high in the period 2017-2022 (Bedson, 2022).

9.5: List of main conservation measures

The continuing implementation of moorland restoration schemes should continue. Illegal harvesting of mountain hares should be prevented.

11.5: Overall assessment of Conservation Status

The overall assessment in conservation status has been determined as unfavourable bad due to continued declines in range and particularly population.